

UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: James M. Campos et al.
Application Number: 10/789,861
Filing Date: 2/27/2004
Group Art Unit: 3766
Examiner: Kennedy Schaetzle
Title: RESONANT MUSCLE STIMULATOR

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APPEAL BRIEF

Pursuant to 37 CFR 1.192, Appellant hereby files an appeal brief in the above-identified application. This Appeal Brief is accompanied by the requisite fee set forth in 37 CFR 1.17(f).

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(1) REAL PARTY IN INTEREST

The real party in interest is Bruce D. Rowe.

(2) RELATED APPEALS AND INTERFERENCES

There are no appeals or interferences that will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) STATUS OF CLAIMS

Claims 1-14 are pending in the application. Claims 1-6 and 8-14 are finally rejected, and claim 7 is objected to as being dependent upon a rejected base claim. The final rejection of claims 1-6 and 8-14 is being appealed.

(4) STATUS OF AMENDMENTS

In response to the Final Rejection dated May 21, 2007. A Notice of Appeal was received in the US Patent Office on August 3, 2007. No further Amendments have been filed subsequent to the Final Rejection.

(5) SUMMARY OF CLAIMED SUBJECT MATTER

The presently pending claims are directed to an apparatus and method for developing muscular strength using a signal configured with particularity to develop strength in a muscle while a user manipulates a device from which the strength-developing signal is received. This configuration allows targeted muscles to be stimulated while the user manipulates the instrument. Combining the electronic muscle stimulation with the act of practicing a movement of a swing or other

manipulation of the device has an unexpected, synergistic effect of training the muscles as it builds strength. In one example, a partial paralytic may regain strength in their hands by holding and writing with a pen configured to transcutaneously deliver a stimulating signal. In another example, a golfer may increase the length of their drive by training muscles simultaneously stimulated by the strength developing signal received from and while swinging their golf club.

Specific support for the claim subject matter for the claims as a whole is directly mapped as presented below:

INDEPENDENT CLAIM 1

A method of developing strength in a muscle used while a user grips and moves a movable instrument, comprising applying a stimulating signal to a hand of the user gripping the moveable instrument (Application, page 44, lines 14-16, Fig. 13) that includes an electrode configured to apply the signal, wherein the signal is applied while the user moves the instrument and develops the muscle while the instrument is in motion (Application, page 44, lines 16-24, Fig. 13).

DEPENDENT CLAIM 2

The method of claim 1, wherein applying the signal further includes applying the signal to a user in contact with a moveable instrument comprising a golf club (Application, page 44, line 5, Fig. 13).

DEPENDENT CLAIM 3

The method of claim 1, wherein applying the signal further includes applying the signal to a user in contact with a moveable instrument comprising a tennis racquet (Application, page 44, line 5, Fig. 13).

DEPENDENT CLAIM 4

The method of claim 1, wherein applying the signal further includes applying the signal to a user in contact with a moveable instrument comprising a baseball bat (Application, page 44, line 5, Fig. 13).

DEPENDENT CLAIM 5

The method of claim 1, wherein applying the signal further includes applying the signal to a user in contact with a moveable instrument comprising a hockey stick (Application, page 44, line 6, Fig. 13).

DEPENDENT CLAIM 6

The method of claim 1, wherein applying the signal further includes applying the signal to a user in contact with a moveable instrument comprising a writing instrument (Application, page 44, line 7, Fig. 13).

DEPENDENT CLAIM 7

The method of claim 1, wherein applying the signal further includes applying a signal comprising a resonant sequence that includes at least three pulses, and wherein the pulses of the resonant sequence are spaced relative to one another such that each pulse subsequent to a first pulse in the sequence is effective to progressively stimulate and create tension in a musculature that includes the muscle inwardly from the electrodes and towards the center of the musculature while maintaining the tension created in at least a portion of the musculature by each preceding pulse in the resonant sequence (Application, page 9, lines 14-20, Fig. 2).

INDEPENDENT CLAIM 8

An apparatus for developing strength in a muscle, comprising a moveable instrument to be gripped and held by a user (Application, page 44, lines 14-16, Fig.

13); and a stimulator in communication with the moveable instrument configured to produce a signal for transcutaneous delivery to the muscle via a hand of the user, wherein the signal is delivered as a user moves the moveable instrument to develop the muscle while the instrument is in motion (Application, page 44, lines 17-23, Fig. 13).

DEPENDENT CLAIM 9

The apparatus of claim 8, wherein the moveable instrument includes an electrode configured to deliver the signal from the stimulator (Application, page 44, lines 17-18, Fig. 13).

DEPENDENT CLAIM 10

The apparatus of claim 9, wherein the electrode comprises a grip of the instrument (Application, page 44, lines 14-17, Fig. 4).

DEPENDENT CLAIM 11

The apparatus of claim 8, wherein the instrument comprises a golf club (Application, page 44, line 5, Fig. 13).

DEPENDENT CLAIM 12

The apparatus of claim 8, wherein the instrument is selected from a group consisting of: tennis racquet, a racquetball racquet, a hockey stick, a lacrosse stick and a writing instrument (Application, page 44, lines 5-7, Fig. 13).

DEPENDENT CLAIM 13

The apparatus of claim 8, wherein the instrument includes a grip comprising an electrode (Application, page 44, lines 14-17, Fig. 4).

DEPENDENT CLAIM 14

The apparatus of claim 8, wherein the application of the signal is affected by input from an input device selected from a group that consists of: a button, a switch, a motion sensor, a voice sensor and a dial (Application, page 11, lines 11-16, Fig. 1).

(6) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

- a. Whether claims 1, 6, 8-10 and 12-14 are properly rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 1,558,351 to *Guasco (Guasco)*?
- b. Whether claims 8, 11, 12 and 14 are properly rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,930,785 to *Mills (Mills)*?
- c. Whether claims 1-5 are properly rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,702,323 to *Poulton (Poulton)*?

(7) ARGUMENT

In summary, none of the cited prior art teaches or suggests a signal for developing muscle, as claimed, let alone a muscle developing signal that is delivered from an instrument that is gripped and swung, moved, etc. by a user. Such a muscle developing signal and grippable device are recited in all of the pending claims, which are to developing muscular strength. Each of the claims includes a signal configured with particularity to develop strength in a muscle while a user manipulates a device from which the strength-developing signal is received.

This configuration allows targeted muscles to be stimulated while the user manipulates the instrument. Combining the electronic muscle stimulation with the act of practicing a movement of a swing or other manipulation of the device has an unexpected, synergistic effect of training the muscles as it builds strength. In one example, a golfer may increase the length of their drive by training muscles simultaneously stimulated by the strength developing signal received from and while swinging their golf club. In another example, a partial paralytic may regain strength in their hands by holding and writing with a pen configured to transcutaneously deliver a stimulating signal.

The cited prior art neither teaches nor suggests a signal configured to build muscle. *Guasco* merely applies its signal to relax and otherwise overcome writer's cramp, not to build muscle. The signal relaxes, not develops muscle. Electrical signals in *Poulton* are used merely to create the impression for the user that they are exercising within a virtual reality environment, again, not to build muscle. That is, while the virtual environment created by the signals at best encourage the user to exercise, but the signals, themselves, do not develop muscle. The electrical signal in *Mills* is merely for alerting a user if their hand position on a golf club is improper. As such, none of the cited prior art teaches or suggests a signal configured to develop muscle, let alone the application of the signal while in the act of training or practicing with a grippable instrument configured to transcutaneously deliver the muscle building signal to achieve the above-stated synergistic effects.

- a. Claims 1, 6, 8-10 and 12-14 are not anticipated under 35 U.S.C. 102(b) by U.S. Patent No. 1,558,351 to *Guasco*.

Applicants respectfully submit that the Examiner's §102(b) rejection of claims 1, 6, 8-10 and 12-14 based upon *Guasco* is not supported on the record,

and should be reversed. Anticipation of a claim under 35 U.S.C. §102 requires that "each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." Verdegaal Bros., Inc. v. Union Oil Co., 2 USPQ2d 1051, 1053 (Fed. Cir. 1987), *quoted in* In re Robertson, 49 USPQ2d 1949, 1950 (Fed. Cir. 1999). Absent express description, anticipation under inherency requires extrinsic evidence that makes it clear that "the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." Continental Can Co. v. Monsanto Co., 20 USPQ2d 1746, 1749 (Fed. Cir. 1991), *quoted in* In re Robertson at 1951. "Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." Continental Can at 1749, *quoted in* In re Robertson at 1951.

As is discussed in greater detail below, *Guasco* does not disclose the various features recited in claims 1, 6, 8-10 and 12-14. As such, the rejections thereof should be reversed.

Independent Claim 1

Claim 1 recites a method of developing strength in a muscle used while a user grips and moves a movable instrument, comprising applying a stimulating signal to a hand of the user gripping the moveable instrument that includes an electrode configured to apply the signal, wherein the signal is applied while the user moves the instrument and develops the muscle while the instrument is in motion.

In developing muscular strength, the method of claim 1 uses a signal configured with particularity to develop strength in a muscle while a user manipulates a device from which the strength-developing signal is received. This configuration allows targeted muscles to be stimulated while the user manipulates the instrument. Combining the electronic muscle stimulation with the act of

practicing a movement of a swing or other manipulation of the device has an unexpected, synergistic effect of training the muscles as it builds strength. In one example, a partial paralytic may regain strength in their hands by holding and writing with a pen configured to transcutaneously deliver a stimulating signal.

Guasco does not teach a signal configured to build muscle. *Guasco* merely applies its signal to relax and otherwise overcome writer's cramp, not to build muscle. The signal relaxes and "rests," and does not stimulate/develop muscle (column 1, lines 19 and 22).

The Examiner asserts that performance of the *Guasco* method inherently develops strength in a muscle since muscle is being activated in the writing process. While this may be partially true, it is not what is claimed. The inherency upon which the Examiner should have focused concerns the properties of the claimed signal to develop muscle. The claimed signal develops muscle, in addition and in complement to any muscle that is inherently developed by virtue of the user manipulating the device.

Guasco is concerned with relaxing (not building) muscles to alleviate writer's cramp (column 1, lines 19 and 20). In this sense, *Guasco* actually teaches away from a hypothetical combination with a reference having a signal that would develop or otherwise stress muscles in the hand. In any case, *Guasco* does not teach such a muscle developing signal, and reversal of the Examiner's rejection and allowance of claim 1 are therefore respectfully requested.

Dependent Claim 6

Claim 6 is allowable by virtue of its dependence upon allowable claim 1. Claim 6 further includes applying the signal to a user in contact with a moveable instrument comprising a writing instrument. As discussed above, the pen disclosed in *Guasco* does not include a signal for developing muscle.

Independent Claim 8

Claim 8 includes an apparatus for developing strength in a muscle, comprising: a moveable instrument to be gripped and held by a user; a stimulator in communication with the moveable instrument configured to produce a signal for transcutaneous delivery to the muscle via a hand of the user, wherein the signal is delivered as a user moves the moveable instrument to develop the muscle while the instrument is in motion.

Guasco does not teach a signal configured to build muscle. *Guasco* merely applies its signal to relax and otherwise overcome writer's cramp, not to build muscle. The signal relaxes and "rests," and does not stimulate/develop muscle (column 1, lines 19 and 22).

For other reasons similar to those discussed in connection with claim 1, reversal of the Examiner's rejection and allowance of claim 8 are respectfully requested.

Dependent Claim 9

Claim 9 is allowable by virtue of its dependence upon allowable claim 8. Claim 9 further recites that the moveable instrument includes an electrode configured to deliver the signal from the stimulator. As this feature further distinguishes the cited prior art, reversal of the Examiner's rejection and allowance of claim 9 are respectfully requested.

Dependent Claim 10

Claim 10 is allowable by virtue of its dependence upon allowable claim 8. Claim 10 further recites that the electrode comprises a grip of the instrument. As this feature further distinguishes the cited prior art, reversal of the Examiner's rejection and allowance of claim 10 are respectfully requested.

Dependent Claim 12

Claim 12 is allowable by virtue of its dependence upon allowable claim 8. Claim 12 further recites that the instrument is selected from a group consisting of: a tennis racquet, a racquetball racquet, a hockey stick, a lacrosse stick and a writing instrument. The cited reference makes no mention of any of the instruments included in this claim. As such, reversal of the Examiner's rejection and allowance of claim 12 are respectfully requested.

Dependent Claim 13

Claim 13 is allowable by virtue of its dependence upon allowable claim 8. Claim 13 further recites that the instrument includes a grip comprising an electrode. As this feature further distinguishes the cited prior art, reversal of the Examiner's rejection and allowance of claim 13 are respectfully requested.

Dependent Claim 14

Claim 14 is allowable by virtue of its dependence upon allowable claim 8. Claim 14 further recites that the application of the signal is affected by input from an input device selected from a group that consists of: a button, a switch, a motion sensor, a voice sensor and a dial. As the cited prior art includes no teaching relating to any of the listed applications, reversal of the Examiner's rejection and allowance of claim 14 are respectfully requested.

b. Claims 8, 11, 12 and 14 are not anticipated under 35 U.S.C. 102(b) by U.S. Patent No. 4,930,785 to *Mills*.

Independent Claim 8

Claim 8 includes an apparatus for developing strength in a muscle, comprising: a moveable instrument to be gripped and held by a user; a stimulator

in communication with the moveable instrument configured to produce a signal for transcutaneous delivery to the muscle via a hand of the user, wherein the signal is delivered as a user moves the moveable instrument to develop the muscle while the instrument is in motion.

In developing muscular strength, the apparatus of claim 1 uses a signal configured with particularity to develop strength in a muscle while a user manipulates a device from which the strength-developing signal is received. This configuration allows targeted muscles to be stimulated while the user manipulates the instrument. Combining the electronic muscle stimulation with the act of practicing a movement of a swing or other manipulation of the device has an unexpected, synergistic effect of training the muscles as it builds strength. In one example, a golfer may increase the length of their drive by training muscles simultaneously stimulated by the strength developing signal received from and while swinging their golf club.

Mills does not teach a stimulating signal configured to stimulate muscle growth, among other claim features. The signal in *Mills* is intended to train a golfer in properly swinging a club (column 2, lines 49-53). The sensor and signal in *Mills* merely alerts the user using vibrations if their grip is incorrect. *Mills* does not disclose a signal configured to build muscle strength. Furthermore, *Mills* does not teach applying an electrical signal configured to develop muscle while a golf club is in motion. For at least these reasons, reversal of the Examiner's rejection and allowance of claim 8 are therefore respectfully requested.

Dependent Claim 11

Claim 11 is allowable by virtue of its dependence upon allowable claim 8. Claim 11 further recites that the instrument is a golf club. As this feature further distinguishes the cited prior art, reversal of the Examiner's rejection and allowance of claim 11 are respectfully requested.

Dependent Claim 12

Claim 12 is allowable by virtue of its dependence upon allowable claim 8. Claim 12 further recites that the instrument is selected from a group consisting of: a tennis racquet, a racquetball racquet, a hockey stick, a lacrosse stick and a writing instrument. The cited reference makes no mention of any of the instruments included in this claim. As such, reversal of the Examiner's rejection and allowance of claim 12 are respectfully requested.

Dependent Claim 14

Claim 14 is allowable by virtue of its dependence upon allowable claim 8. Claim 14 further recites that the application of the signal is affected by input from an input device selected from a group that consists of: a button, a switch, a motion sensor, a voice sensor and a dial. As the cited prior art includes no teaching relating to any of the listed applications, reversal of the Examiner's rejection and allowance of claim 14 are respectfully requested.

- c. Claims 1-5 are not unpatentable under 35 U.S.C. 103(a) over U.S. Patent No. 5,702,323 *Poulton* (*Poulton*).

Applicants respectfully submit that the Examiner's §103(a) rejection of claims 1-5 based upon *Poulton* is not supported on the record, and should be reversed. A *prima facie* showing of obviousness requires that the Examiner establish that the differences between a claimed invention and the prior art "are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art." 35 U.S.C. §103(a). Such a showing requires that all claimed features be disclosed or suggested by the prior art. Such a showing also requires objective evidence of the suggestion,

teaching or motivation to combine or modify prior art references, as "[c]ombining prior art references without evidence of such a suggestion, teaching or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability -- the essence of hindsight." In re Dembiczak, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999).

As will be discussed in greater detail below, *Poulton* does not motivate or suggest the various features recited in claims 1-5. As such, the rejections thereof should be reversed.

Independent Claim 1

Claim 1 recites a method of developing strength in a muscle used while a user grips and moves a movable instrument, comprising applying a stimulating signal to a hand of the user gripping the moveable instrument that includes an electrode configured to apply the signal, wherein the signal is applied while the user moves the instrument and develops the muscle while the instrument is in motion.

The method of claim 1 uses a signal configured with particularity to develop strength in a muscle while a user manipulates a device from which the strength-developing signal is received. This configuration allows targeted muscles to be stimulated while the user manipulates the instrument. Combining the electronic muscle stimulation with the act of practicing a movement of a swing or other manipulation of the device has an unexpected, synergistic effect of training the muscles as it builds strength.

Poulton does not teach a signal configured to build muscle. Rather, *Poulton* pertains to creating and a simulated exercise environment. The signals produced in *Poulton* do not, themselves, build muscle. Instead, they encourage a user to exercise and build muscle (on their own) by making a virtual reality environment seem more real (column 9, lines 60-64 and column 11, lines 1-5).

The Examiner asserts that the simulation provided by the signals of *Poulton* enhances exercise. While this may be partially true, it is not what is claimed. While a user exercising with the prior art device may build muscle attributable to the exercise, itself, the muscle building activity is confined to the user's own exercise efforts. For instance, a user in *Poulton* may be made to feel pressure associated with a virtual karate kick. The signals used to simulate the virtual kick do not build muscle, but instead, create the illusion in the mind of the user that he or she is being kicked. Of note, there is no electric signal present in *Poulton* that is configured to build muscle irrespective of whether the user exercises in the virtual environment. The claimed signal develops muscle, in addition and in complement to any muscle that is inherently developed by virtue of the user manipulating the device. For at least these reasons, reversal of the Examiner's rejection and allowance of claim 1 are therefore respectfully requested.

Dependent Claim 2

Claim 2 is allowable by virtue of its dependence upon allowable claim 1. Claim 2 further includes applying the signal to a user in contact with a moveable instrument comprising a golf club. As this feature further distinguishes the cited prior art, reversal of the Examiner's rejection and allowance of claim 2 are respectfully requested.

Dependent Claim 3

Claim 3 is allowable by virtue of its dependence upon allowable claim 1. Claim 3 further includes applying the signal to a user in contact with a moveable instrument comprising a tennis racquet. As *Poulton* does not suggest a tennis racquet, reversal of the Examiner's rejection and allowance of claim 3 are respectfully requested.

Dependent Claim 4

Claim 4 is allowable by virtue of its dependence upon allowable claim 1. Claim 4 further includes applying the signal to a user in contact with a moveable instrument comprising a baseball bat. As *Poulton* does not suggest a baseball bat, reversal of the Examiner's rejection and allowance of claim 4 are respectfully requested.

Dependent Claim 5

Claim 5 is allowable by virtue of its dependence upon allowable claim 1. Claim 5 further includes applying the signal to a user in contact with a moveable instrument comprising a hockey stick. As *Poulton* does not suggest a hockey stick, reversal of the Examiner's rejection and allowance of claim 5 are respectfully requested.

(8) CONCLUSION

In view of the foregoing discussion, it is respectfully requested that the Honorable Board of Patent Appeals and Interferences overrule the final rejection of Claims 1-6 and 8-14 over the cited art, and hold that the Appellant's claim be allowable over such art.

Respectfully submitted,



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CLAIMS APPENDIX

1. A method of developing strength in a muscle used while a user grips and moves a movable instrument, comprising applying a stimulating signal to a hand of the user gripping the moveable instrument that includes an electrode configured to apply the signal, wherein the signal is applied while the user moves the instrument and develops the muscle while the instrument is in motion.
2. The method of claim 1, wherein applying the signal further includes applying the signal to a user in contact with a moveable instrument comprising a golf club.
3. The method of claim 1, wherein applying the signal further includes applying the signal to a user in contact with a moveable instrument comprising a tennis racquet.
4. The method of claim 1, wherein applying the signal further includes applying the signal to a user in contact with a moveable instrument comprising a baseball bat.
5. The method of claim 1, wherein applying the signal further includes applying the signal to a user in contact with a moveable instrument comprising a hockey stick.
6. The method of claim 1, wherein applying the signal further includes applying the signal to a user in contact with a moveable instrument comprising a writing instrument.
7. The method of claim 1, wherein applying the signal further includes applying a signal comprising a resonant sequence that includes at least three pulses, and wherein the pulses of the resonant sequence are spaced relative to one another such that each pulse subsequent to a first pulse in the sequence is effective to progressively stimulate and create tension in a musculature that includes the

muscle inwardly from the electrodes and towards the center of the musculature while maintaining the tension created in at least a portion of the musculature by each preceding pulse in the resonant sequence.

8. An apparatus for developing strength in a muscle, comprising:
 - a moveable instrument to be gripped and held by a user;
 - a stimulator in communication with the moveable instrument configured to produce a signal for transcutaneous delivery to the muscle via a hand of the user, wherein the signal is delivered as a user moves the moveable instrument to develop the muscle while the instrument is in motion.
9. The apparatus of claim 8, wherein the moveable instrument includes an electrode configured to deliver the signal from the stimulator.
10. The apparatus of claim 9, wherein the electrode comprises a grip of the instrument.
11. The apparatus of claim 8, wherein the instrument comprises a golf club.
12. The apparatus of claim 8, wherein the instrument is selected from a group consisting of: tennis racquet, a racquetball racquet, a hockey stick, a lacrosse stick and a writing instrument.
13. The apparatus of claim 8, wherein the instrument includes a grip comprising an electrode.
14. The apparatus of claim 8, wherein the application of the signal is affected by input from an input device selected from a group that consists of: a button, a switch, a motion sensor, a voice sensor and a dial.

EVIDENCE APPENDIX

None

RELATED PROCEEDINGS APPENDIX

None